

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 5 Claim 1 (Currently Amended): A method of detecting inter-carrier-symbol interference (ICSI) of a symbol for adjusting a boundary of the symbol utilized by an OFDM system, wherein each symbol includes a plurality of signals respectively transmitting via a plurality of sub-carriers, the method comprising:
- 10 computing a first correlation value representing the correlation between at least one of first signals of a first symbol and at least one of second signals of a second symbol previous to the first symbol, wherein the at least one first signal is transmitted via a first sub-carrier and the at least one second signal is transmitted via a second sub-carrier adjacent to the first sub-carrier;
- 15 computing a second correlation value representing the correlation between the at least one first signal and at least one of third signals of a third symbol next to the first symbol, wherein the at least one first signal is transmitted via the first sub-carrier and the at least one third signal is transmitted via the second sub-carrier;
- 20 comparing the first correlation value with the second correlation value; and
 adjusting the timing of the boundary according to the comparison result[.];
 wherein the step of computing the first correlation value comprises:
 computing a conjugated value of the at least one first signal;
 multiplying the conjugated at least one first signal by the corresponding one of
 the second signals for generating a product value; and
25 generating the first correlation value according to the summation of the product value.

Claim 2 (Original): The method of claim 1, wherein the signals include a plurality of pilot

signals and a plurality of data signals.

Claim 3 (Cancelled)

5 Claim 4 (Currently Amended): The method of claim [[3]] 1, wherein the first correlation value is generated according to the summation of the absolute value of the product value.

10 Claim 5 (Currently Amended): The method of claim [[3]] 1, wherein the first correlation value is generated according to the summation of the square value of the product value.

15 Claim 6 (Currently Amended): ~~The method of claim 1,~~ A method of detecting inter-carrier-symbol interference (ICSI) of a symbol for adjusting a boundary of the symbol utilized by an OFDM system, wherein each symbol includes a plurality of signals respectively transmitting via a plurality of sub-carriers, the method comprising:
20 computing a first correlation value representing the correlation between at least one of first signals of a first symbol and at least one of second signals of a second symbol previous to the first symbol, wherein the at least one first signal is transmitted via a first sub-carrier and the at least one second signal is transmitted via a second sub-carrier adjacent to the first sub-carrier;
25 computing a second correlation value representing the correlation between the at least one first signal and at least one of third signals of a third symbol next to the first symbol, wherein the at least one first signal is transmitted via the first sub-carrier and the at least one third signal is transmitted via the second sub-carrier;
 comparing the first correlation value with the second correlation value; and

adjusting the timing of the boundary according to the comparison result;

wherein the step of computing the second correlation value comprises:

computing a conjugated value of the at least one first signal;

multiplying the conjugated at least one first signal by the corresponding one of the

5 third signals for generating a product value; and

generating the second correlation value according to the summation of the product value.

10 Claim 7 (Original): The method of claim 6, wherein the second correlation value is generated according to the summation of the absolute value of the product value.

Claim 8 (Original): The method of claim 6, wherein the second correlation value is generated according to the summation of the square value of the product value.

15 Claim 9 (Original): The method of claim 1, wherein method further comprises:
equalizing and slicing the second symbol for generating the at least one second signal; and
equalizing and slicing the third symbol for generating the at least one third signal.

20 Claim 10 (Currently Amended): An apparatus of detecting inter-carrier-symbol interference (ICSI) of a symbol for adjusting a boundary of the symbol utilized by an OFDM system, wherein each symbol includes a plurality of signals respectively transmitting via a plurality of sub-carriers, the apparatus comprising:
a first correlator for computing a first correlation value representing the correlation
25 between at least one of first signals of a first symbol and at least one of second signals of a second symbol previous to the first symbol, wherein the at least one first signal is transmitted via a first sub-carrier and the at least one second signal is transmitted via a second sub-carrier adjacent to the first sub-carriers;

a second correlator for computing a second correlation value representing the correlation between the at least one first signal and at least one of third signals of a third symbol next to the first symbol, wherein the at least one first signal is transmitted via the first sub-carrier and the at least one third signal is transmitted via the second sub-carrier;

5 a comparator for comparing the first correlation value with the second correlation value; and

a timing controller for adjusting the timing of the boundary according to the comparison result[.];

10 wherein the first correlator further comprises:

a conjugating unit for computing a conjugated value of the at least one first signal;

a multiplying unit for multiplying the conjugated at least one first signal by the at least one second signal for generating a product value; and

a correlation value computer for generating the first correlation value according to the product value.

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Claim 11 (Original): The apparatus of claim 10, wherein the signals include a plurality of pilot signals and a plurality of data signals.

20 Claim 12 (Cancelled)

Claim 13 (Currently Amended): The apparatus of claim [[12]] 10, wherein the correlation value computer comprises:

a absolute value calculating unit for calculating the absolute value of each of the product values; and

25 a summation unit for calculating the sum of the absolute value of the product values.

Claim 14 (Currently Amended): The apparatus of claim [[12]] 10, wherein the correlation

value computer comprises:

a square value calculating unit for calculating the square value of each of the
product values; and

a summation unit for calculating the sum of the square value of the product values.

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Claim 15 (Currently Amended): ~~The apparatus of claim 10,~~ An apparatus of detecting
inter-carrier-symbol interference (ICSI) of a symbol for adjusting a boundary of the
symbol utilized by an OFDM system, wherein each symbol includes a plurality of
signals respectively transmitting via a plurality of sub-carriers, the apparatus
10 comprising:

a first correlator for computing a first correlation value representing the correlation
between at least one of first signals of a first symbol and at least one of second
signals of a second symbol previous to the first symbol, wherein the at least one
first signal is transmitted via a first sub-carrier and the at least one second signal
15 is transmitted via a second sub-carrier adjacent to the first sub-carriers;

a second correlator for computing a second correlation value representing the
correlation between the at least one first signal and at least one of third signals
of a third symbol next to the first symbol, wherein the at least one first signal is
transmitted via the first sub-carrier and the at least one third signal is transmitted
20 via the second sub-carrier;

a comparator for comparing the first correlation value with the second correlation
value; and

a timing controller for adjusting the timing of the boundary according to the
comparison result;

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wherein the second correlator further comprises:

a conjugating unit for computing a conjugated value of the at least one first signal;

a multiplying unit for multiplying the conjugated at least one first signal by the at
least one third signal for generating a product value; and

a correlation value computer for generating the second correlation value according to the product value.

5 Claim 16 (Original): The apparatus of claim 15, wherein the correlation value computer comprises:
a absolute value calculating unit for calculating the absolute value of each of the product values; and
a summation unit for calculating the sum of the absolute value of the product values.

10 Claim 17 (Original): The apparatus of claim 15, wherein the correlation value computer comprises:
a square value calculating unit for calculating the square value of each of the product values; and
a summation unit for calculating the sum of the square value of the product values.

15 Claim 18 (Currently Amended): The apparatus of claim 10, wherein the apparatus further comprises:
a first equalizer for equalizing the second symbol;
a first slicer coupled to the first correlator for slicing the equalized second symbol
20 and generating the at least one second signal;
a second equalizer for equalizing the third symbol; and
a second slicer coupled to the second correlator for slicing the equalized third symbol and generating the at least one third signal[[]].

25 Claim 19 (New): The method of claim 6, wherein method further comprises:
equalizing and slicing the second symbol for generating the at least one second signal; and
equalizing and slicing the third symbol for generating the at least one third signal.

Claim 20 (New): The apparatus of claim 15, wherein the apparatus further comprises:

- a first equalizer for equalizing the second symbol;
- a first slicer coupled to the first correlator for slicing the equalized second symbol
- 5 and generating the at least one second signal;
- a second equalizer for equalizing the third symbol; and
- a second slicer coupled to the second correlator for slicing the equalized third
symbol and generating the at least one third signal.